

Notice of Allowability

Application No.

10/603,951

Examiner

Yolanda L. Wilson

Applicant(s)

ARMANGAU ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Appeal Brief received on 01/21/07.
2. ☒ The allowed claim(s) is/are 1-4, 7-22 and 25-36.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-4,7-32 are allowed.

Reason for Allowance

2. The following is an examiner's statement of reasons for allowance: The primary reason for the allowance of claims 1-4 is the inclusion of the limitation 'when the primary site becomes operative using the snapshot copy to restore the primary file system to the state of the secondary file system existing when read/write access of the secondary file system was begun and then writing into the primary file system the changes made to the secondary file system during the read/write access to the secondary file system'.

The primary reason for the allowance of claim 7 is the inclusion of the limitation 'wherein the asynchronous remote copy of changes made to the secondary file system being copied to the primary file system includes transmitting changes made to the secondary file system over a first IP pipe from the secondary site to the primary site, and the synchronizing of the primary file system to the snapshot copy of the secondary file system includes transmitting changes made to the secondary file system over a second IP pipe from the secondary site to the primary site, and wherein the transmission of the changes made to the secondary file system over the first IP pipe is concurrent with the transmission of the changes made to the secondary file system over the second IP pipe.'

The primary reason for the allowance of claims 8-10 is the inclusion of the limitation 'when the primary site becomes operative, making a second snapshot copy of

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the secondary file system, beginning asynchronous remote copy of changes made to the secondary file system since the second snapshot copy being copied to the primary file system, using the first snapshot copy to restore the primary file system to the state of the secondary file system existing when read/write access of the secondary file system was begun, and then writing into the primary file system the changes made to the secondary file system during the read/write access to the secondary file system between the time of the first snapshot copy and the second snapshot copy'.

The primary reason for the allowance of claims 11-18 is the inclusion of the limitation 'accessing the list of the data blocks that have been changed in the primary file system to restore the primary file system to a prior state at a restart point, the prior state at the restart point including changes made to the primary file system that have been transmitted to the secondary site, the primary file system being restored by determining from the list the data blocks that have been changed in the primary file system since the restart point, and obtaining from the secondary site the data existing at the time of the restart point in the data blocks that have been changed in the primary file system since the restart point'.

The primary reason for the allowance of claims 19-22 is the inclusion of the limitation 'wherein the primary data storage system and the secondary data storage system are programmed for recovery when the primary data storage system becomes operative by using the snapshot copy to restore the primary file system to the state of the secondary file system existing when read/write access of the secondary file system

was begun, and then writing into the primary file system the changes made to the secondary file system during the read/write access to the secondary file system'.

The primary reason for the allowance of claim 25 is the inclusion of the limitation 'wherein the secondary data storage system is programmed to perform the asynchronous remote copy of changes made to the secondary file system being copied to the primary file system by transmitting changes made to the secondary file system over a first IP pipe from the secondary data storage system to the primary data storage system, and the secondary data storage system is programmed to synchronize the primary file system to the snapshot copy of the secondary file system by transmitting changes made to the secondary file system over a second IP pipe from the secondary data storage system to the primary data storage system, wherein the transmission of the changes made to the secondary file system over the first IP pipe is concurrent with the transmission of the changes made to the secondary file system over the second IP pipe '.

The primary reason for the allowance of claims 26-28 is the inclusion of the limitation 'wherein the primary data storage system and the secondary data storage system are programmed for using the first snapshot copy to restore the primary file system to the state of the secondary file system existing when read/write access of the secondary file system was begun, and then writing into the primary file system the changes made to the secondary file system during the read/write access to the secondary file system between the time of the first snapshot copy and the second snapshot copy'.

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The primary reason for the allowance of claims 29-36 is the inclusion of the limitation 'wherein the primary data storage system and the secondary data storage system are programmed for recovering from a disruption in the asynchronous remote copy of changes made to the primary file system being copied to the secondary file system by accessing the list of the data blocks that have been changed in the primary file system to restore the primary file system to a prior state at a restart point, the prior state at the restart point including changes made to the primary file system that have been transmitted to the secondary data storage system, the primary file system being restored by determining from the list the data blocks that have been changed in the primary file system since the restart point'.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yolanda L. Wilson whose telephone number is (571) 272-3653. The examiner can normally be reached on M-F (7:30-4:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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